

abandoned, and to U.S. Serial No. 08/170,510, filed December 20, 1993, now U.S. Patent No. 5,490,938, the disclosures of which are herein incorporated by reference.

Statement of Government Support

This invention was made with government support under Grant Nos. 2 R44 EY10787-02, 5 R44 EY10787-03 and 3 R44 EY10787-03S1, awarded by the Department of Health and Human Services (National Institutes of Health - National Eye Institute). The government has certain rights in the invention. --

In the Claims

Please cancel without prejudice claims 1-24.

Please add new claims 25-49 as follows.

Sub B1

25. An article of manufacture comprising an antimicrobial coating, wherein the antimicrobial coating comprises a nitrogen-containing polycationic polymer matrix having dispersed therein or attached thereto an antimicrobial metallic material such that the antimicrobial coating does not release biocidal amounts of elutables into the surrounding environment.

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26. The article of claim 25 wherein the nitrogen-containing polycationic polymer matrix comprises benzalkonium groups or derivatives thereof.

27. The article of claim 25 wherein the antimicrobial metallic material is selected from the group consisting of a metal, a metal salt, a metal complex, a metal alloy, and mixtures thereof.

28. The article of claim 27 wherein the metallic material comprises silver.

29. The article of claim 27 wherein the mixture comprises silver and copper.

30. The article of claim 27 wherein the metal salt is silver iodide.

31. The article of claim 25 wherein the nitrogen-containing polycationic polymer matrix is crosslinked with a crosslinking agent.
32. The article of claim 31 wherein the crosslinking agent is selected from the group consisting of isocyanates, carboxylic acids, acid chlorides, acid anhydrides, succimidyl ether aldehydes, ketones, alkyl methanesulfonates, alkyl trifluoromethanesulfonates, alkyl para-toluenemethanesulfonates, alkyl halides, and epoxides.
33. The article of claim 31 wherein the crosslinking agent is N,N-methylene-bis-diglycidylaniline.
34. The article of claim 25 wherein the metallic material is transferred to or taken up by the microorganism when the microorganism contacts the surface.
(Handwritten mark)
35. The article of claim 25 wherein the article is a medical device, a personal care product, or a consumer product.
(Handwritten mark)
36. The article of claim 25 wherein the article is a medical device selected from the group consisting of surgical gloves, surgical instruments, dental care instruments, dental consoles, instrument trays, catheters, urological devices, blood collection and transferring devices, devices from implanting in a patient, urine collection devices, ophthalmic devices, intraocular lenses, tracheotomy devices, topical disinfectants and wound dressings.
37. The article of claim 35 wherein the personal care product is selected from the group consisting of hair care items, toothbrushes, dental floss, dental implements, contact lenses, contact lens storage cases, baby care items, child care items, bathroom implements, bed linens, towels and wash cloths.

38. The article of claim 35 wherein the consumer product is selected from the group consisting of kitchen implements, trash containers, disposable trash bags and cutting boards.

39. A method of inhibiting microbial growth comprising the steps of:
providing a substrate comprising an antimicrobial coating comprising an antimicrobial metallic material associated with a nitrogen-containing polycationic polymeric matrix such that the nitrogen-containing polycationic polymeric matrix does not release biocidal amounts of the antimicrobial metallic material into an ambient aqueous solution; and
killing or inhibiting a microorganism that contacts the antimicrobial coating.

40. The method of claim 39 wherein the antimicrobial metallic material is selected from the group consisting of a metal, a metal salt, a metal complex, a metal alloy, and mixtures thereof.

41. The method of claim 40 wherein the antimicrobial metallic material comprises silver.

42. The method of claim 40 wherein the metal salt is silver iodide.

43. The method of claim 39 wherein the nitrogen-containing polycationic polymeric matrix contains benzalkonium groups.

44. The method of claim 39 wherein the nitrogen-containing polycationic polymeric matrix is crosslinked with a crosslinking agent.

45. The method of claim 44 wherein the crosslinking agent is selected from the group consisting of isocyanates, carboxylic acids, acid chlorides, acid anhydrides, succimidyl